

**Ian Hesner, ETH Zurich**

## **Implementing a Floquet code on Superconducting Hardware**

Floquet codes are a newer style of quantum error correcting code with dynamically-generated logical observables defined on a hexagonal lattice. The hexagonal layout makes it a great candidate to fit on the heavy-hex layout of IBM quantum devices. In this work, we view the Floquet code through the anyonic model of topological quantum computing to define a planar implementation that fits on existing devices. Actually running the Floquet code on IBM's `ibm_sherbrooke` Eagle device shows that current devices are still well above Floquet code thresholds. Further work investigated a benchmarking technique to more accurately compare simulation data to real device data. Typically, simulation results for running quantum error correcting codes compare quite poorly to results obtained from real devices. Detector triggering likelihoods were explored to be used as an intermediate parameter to directly compare the two, with limited success.